Testing? Check It Out!

Arkady Galyash

TosChart

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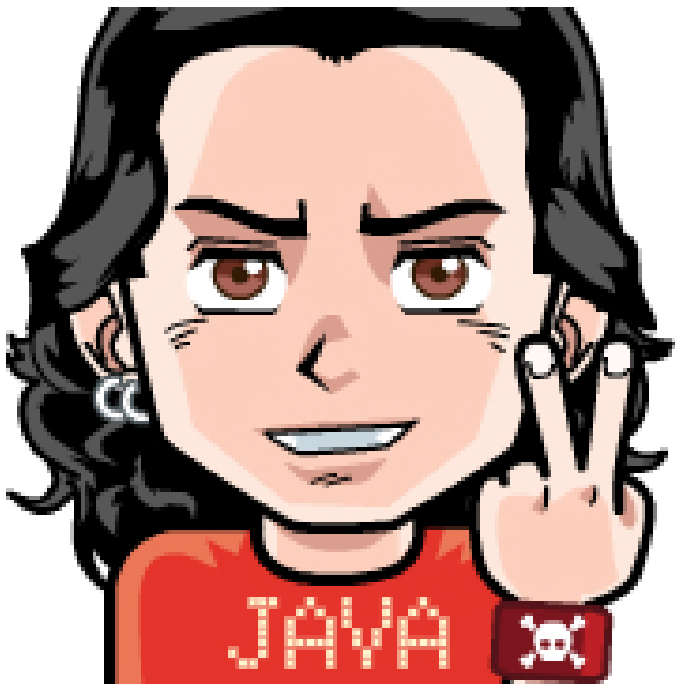
Agenda

1. How regular JUnit test looks like (in time)?
2. Property based testing
3. Java Quickchecks
4. Where can we use it?
5. Links

Intro

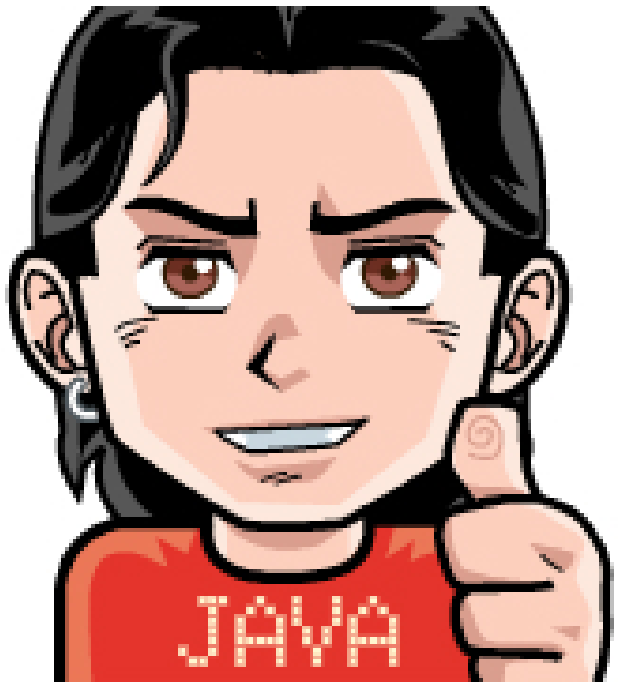
- John Doe The Programmer
- Java developer @ Moon Ms
- Since 2000
- Binary search algorithm

June 2000



Just graduated, "tests are for chicken"

May 2001



JUnit discovered

July 2006

User tries to search non-existant element

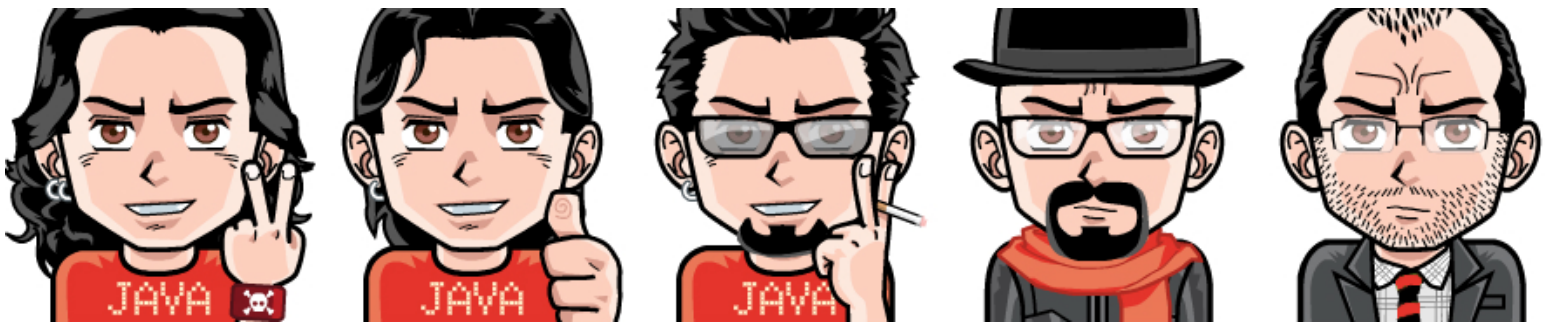
December 2007

User tries to search in array with duplicates

October 2009

Integer overflow

Long way



2000 2001 2006 2007 2009

simpleTest

missingTest

sameTest

hugeArrayTest

xUnit

- Design tests example by example
- Test suites give us confidence that code works for the examples we thought of
- If we discover a test case, this test is useless right now, it may be useful only in future
- "Don't ask, don't tell"

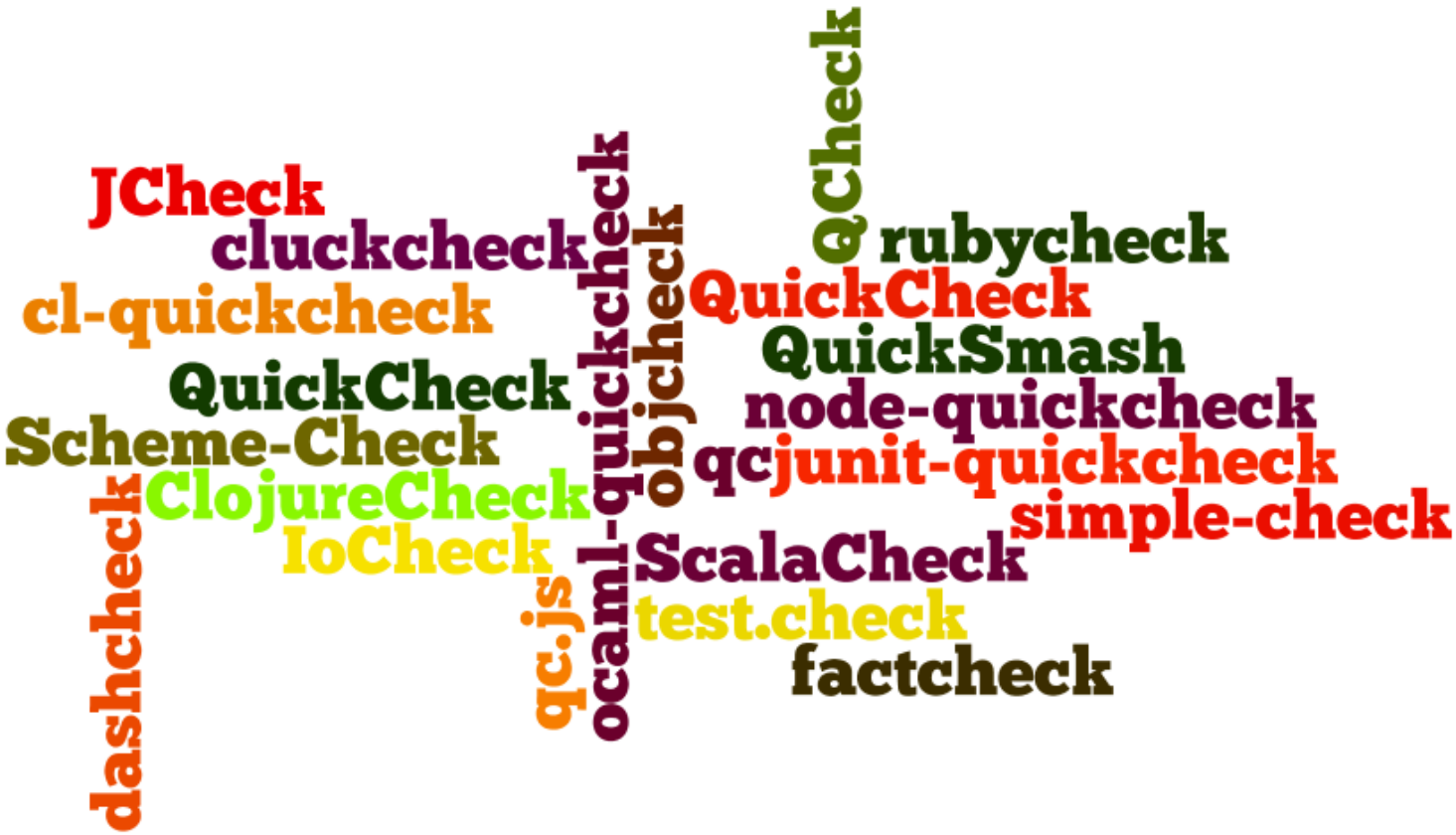
Property based testing

- Another approach
- You specify actions and post-conditions
- Let computer generate input data
  (it will not forget about corner cases)

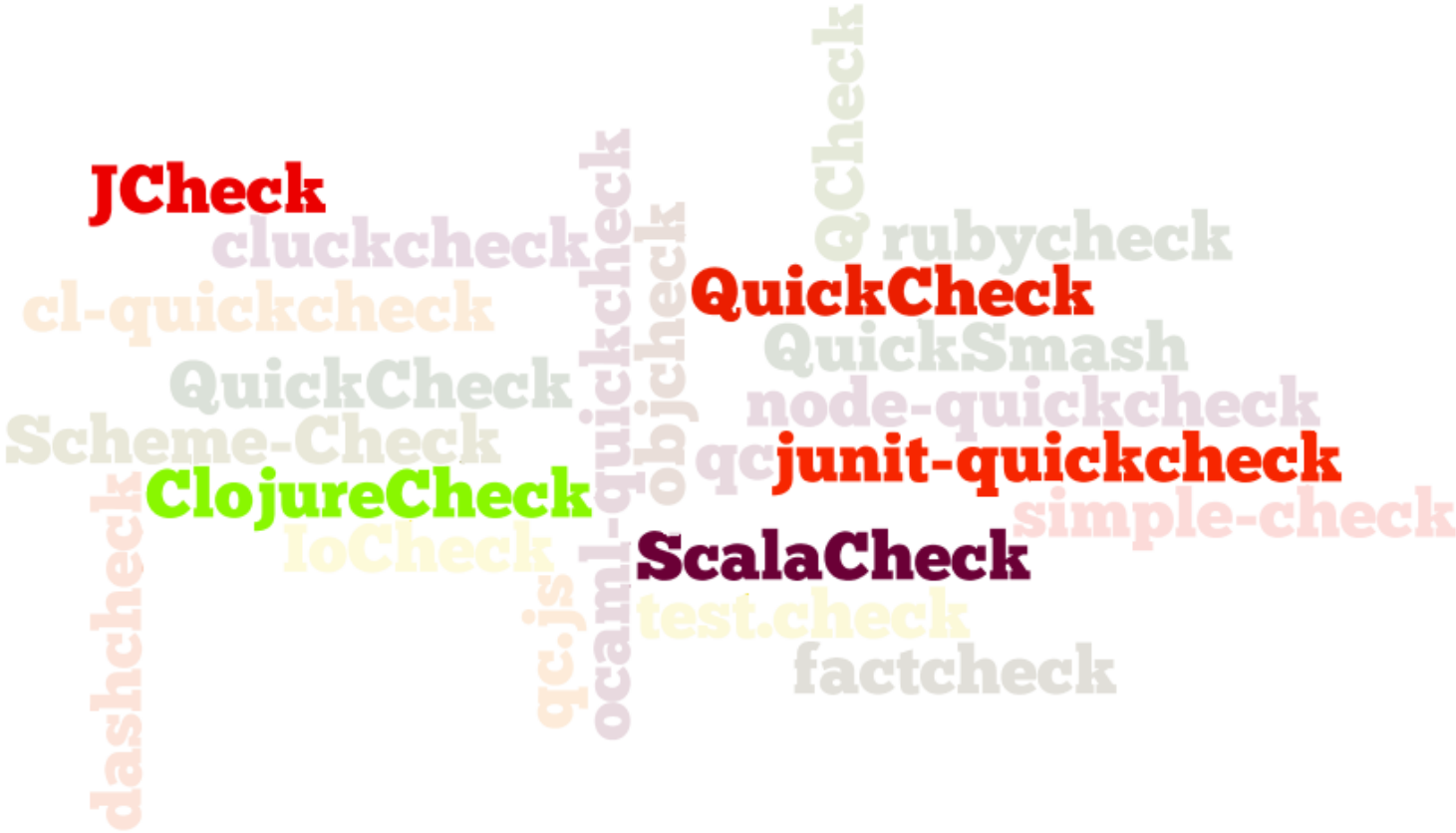
QuickCheck History

- Initially written for Haskell in 1999
- By Koen Claessen and John Hughes
- BSD-style License

QuickCheck implementations



QuickCheck implementations

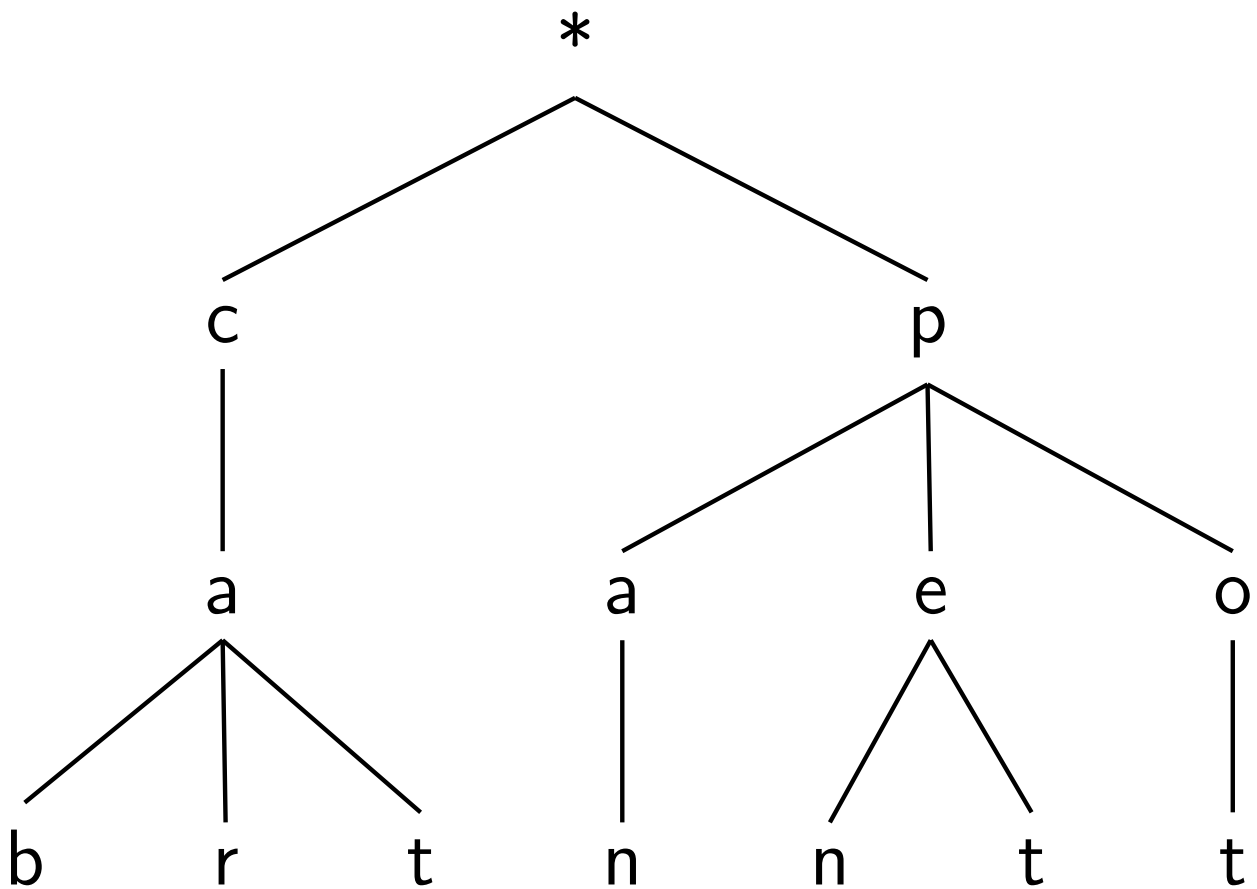


Scala? Clojure?

Implementations criteria

- Generators of custom types
- Generators with restrictions
- Search-space customization

Trie



junit-quickcheck

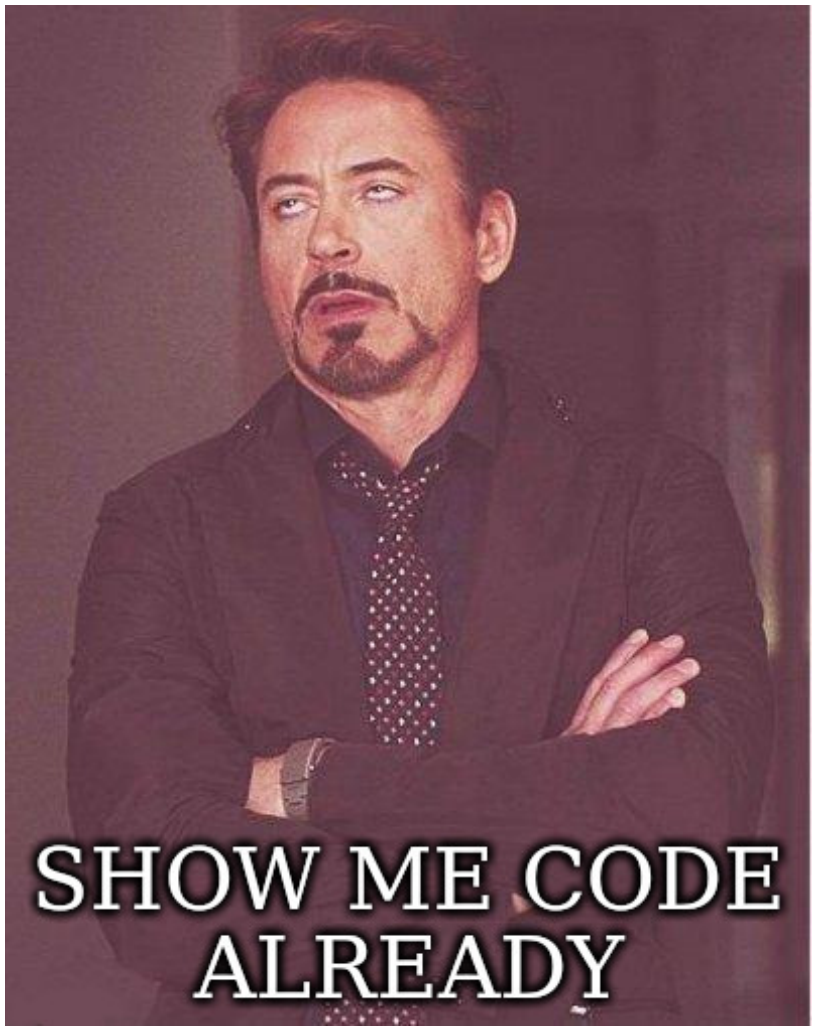
- Based on `org.junit.experimental.theories.*`
- Annotation-based
- On github.com by @pholser
- 0.3 version in maven repository
- Found bug with generics during making presentation

Demo

JCheck

- Has its own JUnit Runner
- Annotation-based
- On sf.net by @hampusr
- 0.1 version jar from 2008

Demo



quickcheck

- Do not have Runner at all
- Handle only data generation
- On bitbucket.org by @blob79
- 0.6 version in maven repository

Demo

ThinkScript

- Programming language for traders
- Technical analisys
- Has a lot of built-in functions (SMA, EMA, WMA, ...)

Standard deviation

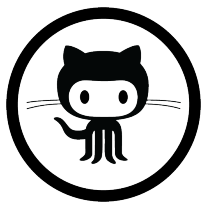
$$\sigma = \sqrt{\frac{1}{N}\sum_{i=1}^{N}(x_i - \mu)^2},$$
$$\mu = \frac{1}{N}\sum_{i=1}^{N} x_i$$

Demo


We Can Check It!
POST FEB. 15 TO FEB. 28
WAR PRODUCTION CO-ORDINATING COMMITTEE

Donald Knuth is shocked by stdev

Links

- JohnDoeProject with examples 
- Introduction to QuickCheck2
- Blog dedicated to Java Quickcheck
- Better Than Unit Tests

Thank you!